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Case Report

Silent pulmonary artery dissection in a centenarian

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Summary Pulmonary artery dissection is an extremely rare and fatal disease that is difficult to diagnose. We report a case of a 97-year-old woman with heart failure, who was diagnosed as having silent pulmonary artery dissection by chance during transthoracic echocardiography. Surgical treatment for pulmonary artery dissection was not performed, but the patient has been doing well in a sanatorium for more than 2 years, being a centenarian.

Introduction

Pulmonary artery dissection is extremely rare and difficult to diagnose during life because pulmonary artery dissection causes a fatal condition, e.g. cardiogenic shock or sudden death [1,2]. We report on an elderly patient with heart failure, who was diagnosed as having pulmonary artery dissection by chance during transthoracic echocardiography.

Case report

A 97-year-old woman was transferred to the emergency department of our hospital because of dyspnea. The patient had been well until 2 weeks before admission, but reduced urine output and bilateral leg edema gradually developed. Diuretics were prescribed for presumed heart failure at another hospital, but the symptoms progressively worsened with decreased oral intake. She was admitted to our hospital.

The patient had a previous history of ulcerative colitis and remained stable without medication. She had been admitted to our hospital because of heart failure 4 years previously. A moderate amount of pericardial effusion (unknown etiology) was identified at that time, but drainage was not performed because of hemodynamic stability without signs of cardiac tamponade. She had never smoked.

On examination, the level of consciousness was clear. The temperature was 37.1 °C, blood pressure 147/89 mm Hg, pulse 115 beats per minute, and oxygen saturation 98% while she was breathing oxygen at 5 l/min via nasal cannula. The jugular veins were slightly distended without Kussmaul's sign. Examination of the heart showed a grade 2/6 holosystolic murmur that was loudest at the apex, with the third sound; basilar rales were heard in the both lung fields; bilateral pretibial pitting edema was present.

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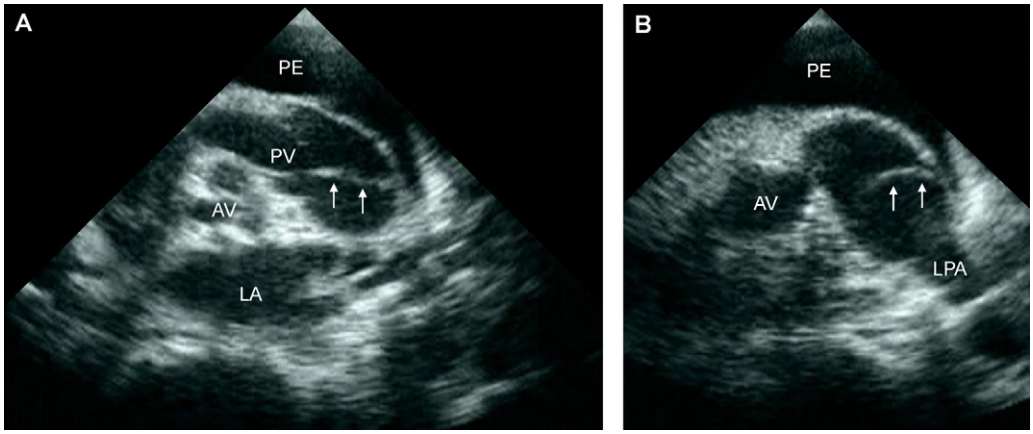

Figure 1 Parasternal short-axis view at the level of aortic valve (AV) showing the flap (arrows) in the pulmonary trunk at the end-diastolic phase (Panel A) and end-systolic phase (Panel B). LA, left atrium; LPA, left pulmonary artery; PE, pericardial effusion; PV, pulmonary valve.

Electrocardiography showed sinus rhythm, low voltage in limb leads, and flat T waves. Chest X-ray showed a cardiothoracic ratio of 76% and a small amount of bilateral pleural effusion. Transthoracic echocardiography showed left ventricular ejection fraction of 57%, trivial to mild mitral-valve regurgitation, mild aortic-valve regurgitation, and mild pulmonary artery-valve regurgitation with slight enlargement of the pulmonary artery. There was a large amount of pericardial effusion without right ventricular or right atrial collapse that was unchanged from 4 years before admission. A dilated inferior vena cava of 16 mm with inspiratory collapse and undetectable tricuspid-valve regurgitation indicated no significant pulmonary hypertension. The flap-like structure, which originated from the base of pulmonary trunk and extended close to the bifurcation of the left pulmonary artery, was detected by chance during echocardiography (Fig. 1; Supplementary Movie 1). The flap in the pulmonary artery was not identified on echocardiography at the age of 93 years. During the 4 years, she had been well and did not complain of any symptoms suggestive of pulmonary artery dissection, indicating that the pulmonary artery dissection occurred silently.

The patient was diagnosed as having diastolic heart failure with pulmonary artery dissection. Medical treatment with diuretics and vasodilators reduced congestion and improved symptoms. Surgical treatment for repair of the pulmonary artery dissection was not performed. After discharge from our hospital, the patient has been doing well in a sanatorium for more than 2 years, being a centenarian.

Discussion

We experienced a case of a 97-year-old woman with silent pulmonary artery dissection who was by chance diagnosed on echocardiography. To our knowledge, the present case is the oldest patient diagnosed with pulmonary artery dissection during life.

The diagnosis of pulmonary artery dissection has been reported to be made postmortem in most cases because the dissection of pulmonary artery is likely to lead to a rupture rather than a distal extension with development of re-entry site, unlike aortic dissection [2]. In 2005, Khattar et al. [1] examined 63 patients with pulmonary artery dissection who were reported over the past 2 centuries (ranging from 26 days to 85 years, no gender predominance), and found that only 8 (13%) cases were diagnosed during life. On the other hand, at least 7 patients with pulmonary artery dissection were diagnosed during life in the 5 years since 2006 [3—9]. The increased number of patients with an antemortem diagnosis may be due to the recent technical development of non-invasive cardiac imaging, e.g. multi-detector computed tomography or magnetic resonance imaging, which did not provide additional information in the present case.

The occurrence of pulmonary artery dissection seems to be associated with structural heart disease and/or pulmonary hypertension due to pulmonary disease. Among the 63 reported cases of pulmonary artery dissection [1], 34 (54%) cases had underlying cardiac disease, e.g. congenital heart disease and rheumatic mitral valve stenosis, and 17 (27%) had pulmonary disease, e.g. primary pulmonary hypertension and pulmonary thrombosis; only 7 (11%) were diagnosed as having idiopathic or unspecified dissection although their details were not described in the article [1]. Our case showed slight enlargement of the pulmonary artery, but neither signs of structural heart disease nor pulmonary hypertension. Elderly patients might develop pulmonary artery dissection without underlying conditions.

Conflict of interest

None declared.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.jccase.2011.10.005.

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